

# HERCULANEUM LEAD SMELTER SITE

Region VII, Missouri

Superfund Site ID No.: 17

CERCLIS ID No.: MOD006266373

Currently Operating Lead Smelter

The HLS site is an active lead smelter, the largest of its kind in the United States, and is currently owned and operated by the Doe Run company. HLS began operations in 1892 and is currently operating at 60% capacity today. The smelter facility consists of three main areas: (1) the smelter plant on the east side of Main Street; (2) office buildings on the west side of Main Street; and (3) the slag storage pile. The HLS site consists of the smelter facility as well as the extensive lead contamination found in the soils and dwellings of Herculaneum.

The site property is approximately 52 acres in size. A slag disposal pile covering approximately 30 acres is located south of the smelter in a horseshoe bend of Joachim Creek. The slag pile is in the flood plain of Joachim Creek, in an area classified as a wetland. The smelter site is bordered on the east by the Mississippi River and on the north and west by residential areas. South of the smelter is the slag pile and wetland area. The slag pile is bordered to the east, west, and south by Joachim Creek, and to the north by residential areas and the smelter facility.

In May 2001, EPA, the Missouri Department of Natural Resources (MDNR), and Doe Run voluntarily entered into an Administrative Order on Consent concerning the Doe Run lead smelter in Herculaneum, Missouri, and areas in the vicinity of the smelter that the smelter operation has impacted. The May 2001 Consent Order requires Doe Run to conduct certain response actions, including the cleanup of lead-contaminated soils in the community.

In August 2001, MDNR personnel observed that road dust had collected in long narrow piles along the street curbs and shoulders of roads in Herculaneum that were used as truck routes for lead concentrate delivery trucks for the HLS facility. Limited sampling performed by EPA in late August and early September confirmed the existence of high levels of lead on the streets of Herculaneum used by Doe Run as haul routes. The sampling showed that residential yards and parks along the haul routes contained high levels of lead.

Due to the discovery of lead concentrate spillage by delivery trucks, EPA notified Doe Run by letter on September 17, 2001, that the existing schedule contained in the May 2001 Consent Order for characterization of lead levels in residential soils needed to be expedited. In that letter, EPA notified Doe Run that within 60 days soil sampling needed to be completed at approximately 540 residences in the vicinity of the smelter. On September 24, 2001, Doe Run notified EPA that it would perform the expedited soil characterization sampling as requested by EPA in the September 17 letter.

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Doe Run completed the soil characterization sampling effort in mid-November 2001. EPA has subsequently provided the results of the soil sampling to each resident whose property was sampled. The results showed that a significant number of the residences sampled have children age six or younger at the residence and lead levels in soil greater than 400 parts per million. Some of the residences have lead levels in soil greater than 10,000 parts per million, primarily in areas directly adjacent to the lead concentrate truck delivery routes. Approximately half of the residents had some portion of their yard soils contaminated with lead at a concentration exceeding 2,500 parts per million.

The EPA conducted home interior dust sampling, road surface sampling of concentrate haul routes, and Potentially Responsible Party (PRP) oversight and duplicate analysis of soil sampling during the fall of 2001. Following the review of this sampling data, EPA determined that the schedule for residential yard soil replacement needed to be accelerated, many home interiors required cleaning, and lead concentrate transportation and handling practices needed to be improved. On December 21, 2001, the Doe Run Company entered into a Consent Order (Order) with EPA to address these concerns. The order put Doe Run on extremely tight schedules to remediate contaminated soils at all homes with children under six years of age within 4 months, and to complete residential soil cleanups within 12 months for all residential yards above 2500 ppm. The order also required the cleaning of home interiors and the development of a Materials Transportation and Handling Plan (Plan) to minimize lead releases from delivery trucks, loading zones, and storage areas. In addition to these actions, EPA offered voluntary, temporary relocation for residences most at risk until their yards and homes were addressed and has provided 102 HEPA vacuum cleaners to residents with contaminated yards.

In addition to these actions, Doe Run entered into an Administrative Order with the Missouri Department of Natural Resources to purchase 160 homes located closest to the smelter. The buyout is voluntary for the homeowner and is scheduled for completion by January 2005.

As of October 2003, yard soils have been replaced at 222 residences and 96 home interiors have been cleaned. A significant number of residents have denied access to have their properties cleaned. EPA believes that the current pace of yard soil replacements (60 yards per year) should be accelerated and is exploring options to do so.

EPA continues to monitor for the recontamination of yard soils and home interiors, lead dust levels in streets, and compliance with site-specific cleanup protocols. Data results indicate that yard soils are not showing lead recontamination, although some home interior surfaces become recontaminated over time. Monitoring data also indicates that lead dust levels remain high along delivery truck routes.

EPA formed a focus group comprised of representatives from state and federal health agencies, community members, EPA, MDNR, and national experts in the field of exposure to interior lead dust. The group was formed to review site-specific interior dust sampling protocols, cleaning procedures, and cleanup clearance criteria. The focus group has completed its assessment and their recommendations are currently under review by the Agency for Toxic Substances and Disease Registry and the MDHSS.

EPA attends and participates in monthly public outreach meetings in Herculanum and mails out a quarterly newsletter to all Herculanum residents. EPA has also initiated a revitalization initiative in the community to begin planning for future use in the buyout zone.

Blood lead prevalence surveys conducted by the Missouri Department of Health and Human Services (MDHSS) have shown a 50% reduction in the prevalence of child elevated blood leads (EBLs) in Herculanum in 2002 when compared to 2001 data. This reduction was attributed to the response actions implemented at the site.

As part of EPA's response actions, a Hazard Ranking Scoring (HRS) package has been developed and has been reviewed by HQ. If at any time Doe Run is unable or unwilling to continue the aforementioned cleanup actions, EPA will immediately take over the response actions using Superfund removal authority, and proceed with listing the site on the National Priorities List (NPL). EPA would continue cleanup actions under removal authority until the site was placed on the NPL, at which time the site would be eligible for remedial funds. EPA estimates that the site can be listed on the NPL within six months.

A security fence has been erected around a portion of the slag pile and efforts are underway to determine its final disposition.

Estimated PRP costs for all site actions: \$26-50 million; EPA costs estimated to be \$1-10 million.